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www.biancoresearch.com

Commentary

Market Opinions and Topics of Interest

By James A. Bianco (847) 304-1511

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How Dangerous Are Credit Default Swaps?

Despite its rapid pace of development, the credit derivatives markets remain vulnerable. There are two major sources of vulnerability, according to market participants. First, it is difficult to assess whether credit derivatives markets, as well as the underlying credit market, will continue to operate smoothly in the event of a major credit event (e.g., a credit event related to a major automobile manufacturer). Second, for some reference names some market participants perceive that the amount of protection bought or sold exceeds the value of the underlying assets. Therefore, if a credit event occurs, there may not be enough deliverable assets for all the claimants. – The IMF Global Financial Stability Report,

[April 2005](#)

Few events in modern finance have been so profound as the growth and development of the Credit Default Swap (CDS) market in the last few years. With such growth come reasonable fears that it can lead to problems as the IMF discussed above.

The table below details the rapid growth of the CDS market in recent years. One would be hard-pressed to find another derivative market that has grown at a similar pace.

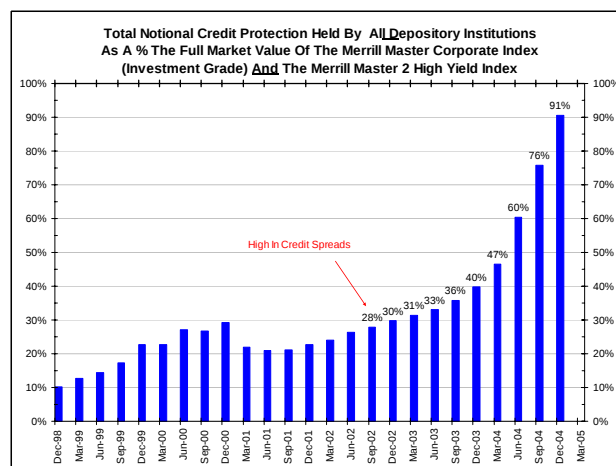
How Big Is CDS?

Period	CDS Notional Amounts	
	ISDA Data	FDIC Data
1H 2001	631.50	351.27
2H 2001	918.87	420.76
1H 2002	1,563.48	525.06
2H 2002	2,191.57	641.55
1H 2003	2,687.91	801.86
2H 2003	3,779.40	1,000.68
1H 2004	5,441.86	1,485.79
2H 2004	8,420.00	2,346.70

Billion of Dollars

While credit derivatives have existed since the mid-1990s, they were mostly on sovereign credits. Only in 2000-2001 did the corporate CDS market accelerate. Corporate CDS account for virtually all of the growth in the table above.

To further illustrate the growth of the CDS market, the following chart plots the total notional value of all the CDS held by FDIC-regulated banks as a percentage of the market value of the corporate and high yield bond market.



Please remember the typical buyer of CDS protection owns protection against **any** liability of that corporation, not just the issues qualifying for the investment-grade or for the high-yield index. A comparison of the CDS market against the size of these indices can therefore be misleading. Nevertheless, we believe this measure accurately reflects the geometric growth of the CDS market relative to a measure of the underlying corporate bond market in recent years.

What Are You Buying? What Are You Selling?

When an immature market grows this fast, there are always fears. The first such fear is lack of transparency. As the consultants McKinsey & Company [recently wrote](#):

Unfortunately, however, the growing use of credit derivatives is transferring risk on an increasingly large scale in ways that are mostly opaque to

investors and regulators. In the past, it was clear which party took on the credit risk—a bank holding a commercial loan, for example, or an insurance company buying corporate bonds. By contrast, credit derivatives typically cover a broad portfolio of debt from numerous corporations rather than a single company's bonds or loans. The portfolio is divided into "tranches" according to levels of risk. Companies that eventually end up holding the credit risk find it difficult to uncover the identity of the underlying businesses and to assess their financial health.

McKinsey continues:

In our judgment, many insurers and commercial banks are taking on too much risk in the credit derivatives market without fully understanding their exposure. In search of better returns, some companies, according to our research, have focused on what is the market's riskiest segment. The situation is particularly unsettling because insurance companies don't face the rigorous capital requirements that the Basel Capital Accord imposes on banks. Moreover, credit-rating agencies and regulators worry that some insurance companies lack the experience and know-how to guard against significant unexpected losses. The Financial Stability Forum, which includes representatives from central banks and supervisory authorities around the world, has called for a rapid increase in the amount of information regulators have about who is transferring credit risk to whom.

In addition, the definitions of a "credit event," the occurrence that will trigger the swap's default contingency terms, are still uncertain. They include:

- Bankruptcy
- Failure to pay after some "reasonable period of time"
- Debt restructuring that hurts existing bond holders.

Definitions subject to legal dispute until accepted standards and practices are known and adjudicated should give pause. While a Chapter 11 bankruptcy filing is easily understandable, "failure to pay" and a negative "debt restructuring" are not. While lawyers will get rich arguing these terms, we should assume that the buyers and sellers of protection have different standards for a credit event. Inevitably, some CDS protection buyers will believe they owned valid insurance for a particular event only to be disappointed. At other times, insurance sellers will encounter negative surprises as well.

How Did This Market Grow So Fast?

One of two explanations generally account for a market's rapid growth. The first is "naked players" speculating on the long and short in two-way trading thus matched and offset at the dealer level. This is usually the case when a market is experiencing a mania or bubble like tech stocks did in 1999-2000. **The second is market players have found a way to hedge themselves without disturbing the underlying cash market. We believe this is the case here.**

Corporate bonds are relatively illiquid securities. The CDS market offers many players a more liquid way of speculating on the direction of corporate spreads than is available through the underlying securities. Furthermore, the principal index of CDS securities, the CDX, enables trading on the generic trend of corporate credit spreads across a basket of bonds. As has been the case with other indices, the index creates numerous spread- and arbitrage trading opportunities.

This would argue for the CDS market being a speculative asset class, one whose geometric growth has been fueled by large amount of two-way trading. While there is no doubt two-way trading has been increasing in this market, we do not believe this explains the lion's share of its growth. First, with corporate spreads recently at multi-year narrow levels as recently as the start of March 2005, one would be hard-pressed to argue for a natural amount of two-way interest in CDS. Second, hedge funds typically are not naked players. Rather, they engage in "alpha strategies" involving combinations of long and short positions.

The above suggests CDS players have been hedging their derivatives with the underlying corporate bonds. But given the illiquidity of the corporate bond market noted above, the geometric growth of the CDS market should have produced a marked increase in the volatility of corporate spreads. However, the opposite has been the case. How can we reconcile increased trade in illiquid securities with lower spread volatility?

Please recall that a wide range of corporate debt, from senior securities to subordinated debt, is covered by CDS in the event of a credit event. **If this list were extended from debt to equities, the hedging possibilities become larger and far more liquid to execute. We believe this has been happening.** Hedge funds and other CDS players are playing, or pricing, the CDS market against the underlying equity market. This especially has been the case with strategies involving the CDX market.

The Credit/Equity Strangle

Many CDS dealers agreed to standardized indices of CDS or CDX over the past year. Standardization reduces contract uncertainty by definition, and this unsurprisingly fueled market growth.

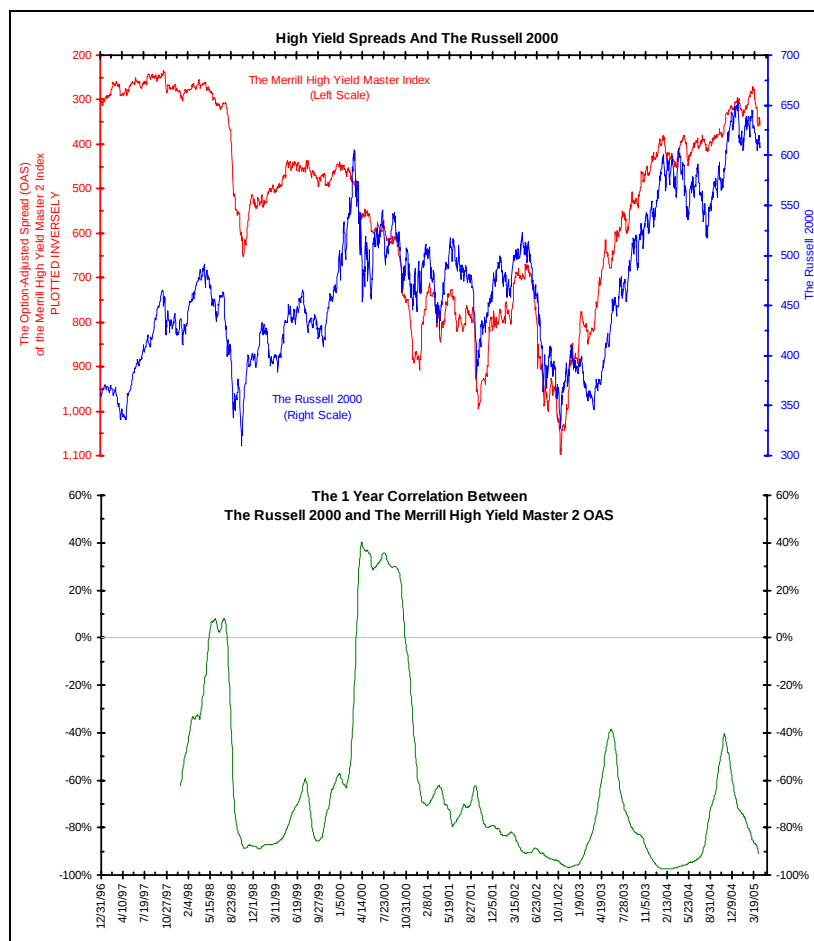
Data in this opaque market is sparse. We often are left to interpret folklore (dealer gossip) and propaganda (dealer research) to understand what is happening.

Most dealer gossip is based on the idea that hedge funds are big **sellers** of CDX. This involves writing credit default protection on an index of credit default securities in a bet corporate spreads will tighten. But why would they sell CDX? Do they believe corporate spreads are too wide?

Not necessarily: They simply could be looking for ways to generate immediate income. Selling a derivative and collecting the premium payment always appeals to such traders.

But by betting on tighter corporate spreads, the CDX sellers are exposed to rising spreads. How can they protect themselves?

First, they reason that whatever would lead to greater risk in the corporate bond market would have a negative effect on the stock market as well. This is more so the case at the aggregate CDX level than at the individual CDS level. As the chart below shows, there is some empirical evidence that suggests this to be the case.



The lower quality corporate spreads of the high-yield index and arguably more marginal stocks of the Russell 2000 do in fact have similar patterns. Their high correlation coincided with the recent high growth of the CDS/CDX market.

Taking our argument to the next level, we would argue CDX writers are hedging themselves with equity options. Why equity options? First, the VIX index is used in many default-likelihood models, such as Merton's and Moody's. Second, and in

keeping with the idea these funds are looking to collect premium upfront, selling equity options makes sense. **Thus we have a credit/equity strangle.**

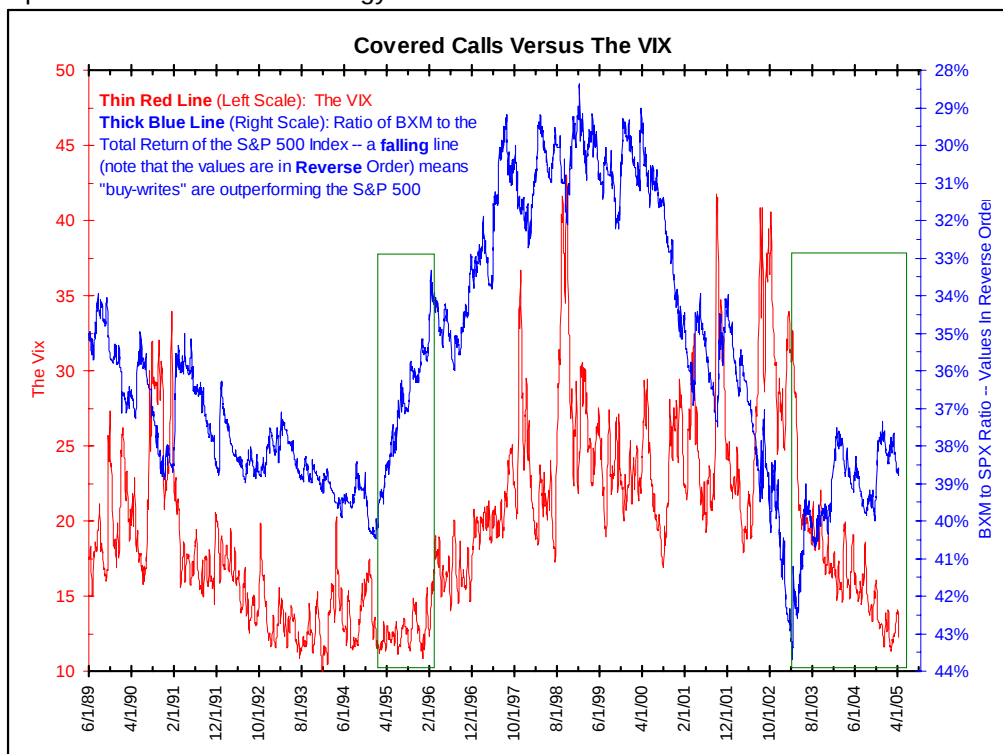
How do we demonstrate they are selling equity options to hedge a short CDX position? Again the market is opaque, so we have to look for circumstantial evidence.

The thin red line below is the VIX; the thick blue line is the ratio of the CBOE's Buy-Write Index (BXM) to

the total return of the S&P 500. The BXM represents the performance of covered call writing based on the S&P 500 and the S&P 500 index options. Showing the BXM and the S&P 500 as a ratio means we are showing the relative profitability of selling equity index call options.

When the thick blue line is rising, it means selling call options as part of a covered call strategy is not

as profitable as holding the stocks outright. When this happens, one would expect option selling would abate. If selling is abating, one would expect the VIX to rise, and that indeed can be seen in the chart below. We see a close relationship between the VIX and the BXM/S&P 500 ratio. They both rise and fall together.



Two notable exceptions to this observation, much of 1995 and the 2003-2005 period, are highlighted with green boxes. In both of these cases we saw a rising blue line, indicating greater returns from the S&P 500 than from the BXM, and a stable to lower VIX.

We can explain 1995 in hindsight. It was an extraordinary year in the stock market – the S&P 500 was up 37.6% without so much as a 3% correction all year. Speculators sold call options betting on a decline, but this relentless advance never led to a stiff correction. Considering how each advance in 1994 was met with selling, this trend must have come as a real shock to most players. Selling options into this strong uptrend gave way after about 6 to 9 months.

What about the last two years? The rising blue line suggests selling covered call options has not been as profitable as betting on a rising index alone. Yet the VIX continues to fall, suggesting a large interest in index call selling. Who are the sellers and why are they fighting the trend against covered calls of the previous two years?

Frankly, if you ask most options traders about the low VIX, they will give you a general "speculators

are selling" answer. When pressed further, that buy-write strategies, the biggest impetus behind option selling, has not very profitable, they demur. In other words, many market players are conjecturing that "speculators are selling" because someone must be selling call options to account for the low VIX.

We would argue there is indeed selling of equity options; this is the "equity half" of the credit/equity strangle. Moreover, this options selling is coming from non-traditional sources and therefore escapes notice from regular market observers.

Where Do We Go From Here?

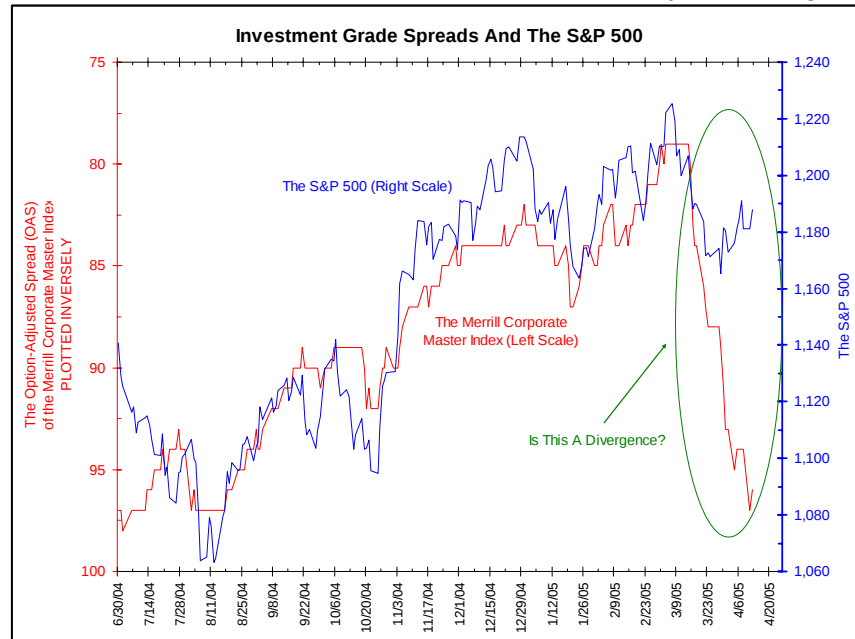
Under the scenario laid out so far, the relationship between equity and debt is critical. Should these two markets diverge from their historical patterns, the credit/equity strangle would stop working. When/if this trade stops working, both the equity options markets and credit spreads will be under pressure.

Is this happening now? Unfortunately answering this question is not as simple as quoting some statistic. The relationship between these two markets is very difficult to quantify (its hedge ratio)

and different market players will quantify it differently.

The chart below shows the last several months of investment grade spreads and the S&P 500 (a

variation of the chart shown earlier). The green oval shows the last few weeks. Does this constitute a divergence that will stress the credit/equity strangle? No one knows for sure but we believe the best answer is, "not yet but it is getting close."

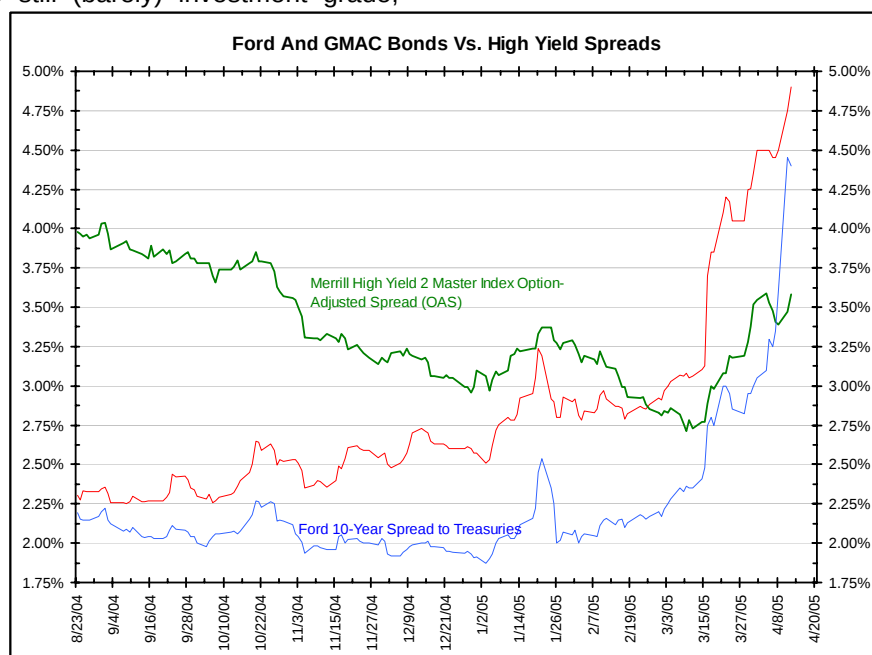


What can cause this relationship to diverge? The most likely cause would be events specific to either the equity market **or** the credit markets. Currently, there are a number of events that are credit market specific leading credit spreads to widen more than stocks have fallen.

Among these events is the current weakness of the auto bonds. The chart below shows Ford and GM bonds as compared to high yield spreads. While Ford and GM are still (barely) investment grade,

their bonds are trading at spreads well above the high yield index.

Given that Ford and GM are two of the three largest corporate borrowers (GE being the other), problems with these companies affect the bond market more than the equity market. So, this story has the potential to diverge credit and equity, as the problems at Ford and GM are more a credit story than an equity story.



In addition to the auto bonds, the re-emerge of the LBO is another factor that could force a divergence in these markets. The recent Sungard Data LBO, coupled with worries among bondholders that JC Penny's management is "lunching" with private equity funds has the bond market on the lookout for another wave of LBOs. After bankruptcy (a qualifying credit event for CDS), a LBO (also a potential qualifying credit event) is probably the next biggest negative for bondholders. However, a LBO is **not** a negative event for equity holders like bankruptcy.

Finally, the recent accounting scandals at Fannie Mae, AIG and MBIA are another source of concern. These scandals are not enough to sink the equity market (at least not yet), but these companies are big enough corporate borrowers that their problems are issues for the credit market.

Conclusion

The CDS and CDX market are just a few years old and they have had a profound affect on the corporate bond market. We believe their effect is similar to the advent of portfolio insurance 18 years ago. Our fear is the outcome may be the same.

In the mid-1980s stock index futures and options grew at a geometric pace. A new strategy was developed around these derivatives called portfolio insurance. Equity managers never had to sell another stock again. They could hold huge portfolios of stocks (which back then were much more difficult to sell) and periodically hedge them with index futures and/or index options when they felt the stock market looked uncertain. They would lift the hedge when the storm clouds passed. Arbitrageurs would keep the prices of options and futures in-line with their underlying equities.

By the summer of 1987 portfolio insurance grew so big it came to dominate the stock market. When the

stock market started correcting from its August 1987 peak, portfolio insurance kicked in. Managers sold futures (not stocks) to arbitrageurs who in turn sold stocks to keep these two markets in-line. This depressed stock prices even further, which caused more futures selling. The vicious circle continued until the stock market crashed on October 19, 1987 when it lost 22% of its value (its worst day in history).

The current story in the credit markets is similar. Portfolio managers hold huge portfolios of illiquid corporate bonds. When things look dicey, some sell bonds but others buy CDS protection. So long as CDS writers (protection sellers) are able to hedge in either the equity option or credit markets, everything runs smoothly. However, should the demand for CDS protection become so great that it swamps either the equity options market, or the corporate bond market, things could get interesting. Given that the notional value of CDS doubled in 2004 to \$8.4 trillion and is continuing to grow at this pace, worries about CDS swamping the equity options and/or credit markets are very real.

Following the stock market crash of 1987, there was a better understanding of stock index futures and changes in their regulation. Today stock index futures are still an important part of the financial markets. Likewise, we believe that the CDS is a permanent part of the financial markets. The problems they pose are due to their opacity and immaturity. Once these markets are better understood, the definition of credit events is much less subjective, transparency will increase, its growth will moderate and these instruments will pose much less of a risk. Until then, the CDS market will remain a potential "flashpoint" of concern for the financial markets.

Bianco Research L.L.C.

1731 North Marcey, Suite 510
Chicago IL 60614

Phone: (847) 304-1511 Fax (847) 304-1749

e-mail: research@biancoresearch.com

<http://www.biancoresearch.com>

For more information about the contents/ opinions contained in these reports:

President (847) 756-3599

James A. Bianco jbianco@biancoresearch.com

Strategists/Analysts (847) 304-1511

Howard L. Simons hsimons@biancoresearch.com

Greg Blaha gblaha@biancoresearch.com

Neil Bouhan nbouhan@biancoresearch.com

For subscription/service Information:

Arbor Research & Trading, Inc.

Director of Sales & Marketing (800) 625-1860

Fritz Handler fritz.handler@arborresearch.com

Jeff Vozella jeff.vozella@arborresearch.com

Arbor Research & Trading, Inc.

1000 Hart Road, Suite 260
Barrington IL 60010

Phone (847) 304-1560 Fax (847) 304-1595

e-mail inforequest@arborresearch.com

<http://www.arborresearch.com>

For more information about Arbor Research & Trading and its services:

Director of Fixed-Income Sales (800) 625-1855

Daniel Lustig dan.lustig@arborresearch.com

Chicago Sales Office

1 N. LaSalle Street, 40th Floor

Chicago IL 60606

Bob Youstra bob.youstra@arborresearch.com

Phone (312) 379-3767

New York Sales Office

230 Park Avenue, Suite 2425

New York, NY 10169

Edward T. McElwreath ed.mcelwreath@arborresearch.com

Phone (212) 867-5326 Fax (212) 370-1218

For more information about Arbor Research & Trading and its services:

Director of International Sales (847) 756-3510

James L. Perry james.perry@arborresearch.com

London Sales Office

75 Cannon Street London England EC4N 5BN

Phone 44-207-556-7309 Fax 44-207-556-7468

For more information:

Director of Arbor (UK) 44-207-556-7309

Neil Tritton neil.tritton@arborresearch.com

Ben Gibson ben.gibson@arborresearch.com